Amendments to the Claims

This listing of claims supersedes all prior listing of claims.

1. (cancelled)

2. (currently amended) The method of claim ~~1~~6, wherein the series of wavelet coefficients for the analysis filter bank and the synthesis filter bank are, prior CSD-conversion, integer wavelet coefficients.

3. (currently amended) The method of claim ~~1~~6, wherein the series of wavelet coefficients for the analysis filter bank and the synthesis filter bank are, prior CSD-conversion, truncated wavelet coefficients.

4. (currently amended) The method of claim ~~1~~6, wherein the series of wavelet coefficients for the analysis filter bank and the synthesis filter bank are, prior CSD-conversion, rounded-off wavelet coefficients.

5. (currently amended) The method of claim ~~1~~6, wherein the series of wavelet coefficients for the analysis and the synthesis filter bank are, prior CSD-conversion, floating point wavelet coefficients.

6. (currently amended) A method for decomposing and inverse decomposing data signals in a digital data system ~~having an encoder portion and a decoder portion~~, comprising the steps of:

receiving an input data signal through ~~the encoder portion of the digital data system~~ a decomposition stage of the digital data system;

~~generating a compressed data signal in the encoding portion of the digital data system;~~

~~generating a decompressed data signal in the decoding portion of the digital data system derived from the compressed signal;~~

generating a series of wavelet coefficients for an analysis filter bank and a synthesis filter bank;

selecting a value, N, to represent the number of powers-of-two terms to represent the wavelet coefficients;

CSD-coding the wavelet coefficients based on the selected value of N;

adjusting the value of N depending on a predetermined threshold to obtain optimized CSD-coded wavelet coefficients for the analysis filter bank and the synthesis filter bank;

filtering the input data signal using the optimized CSD-coded wavelet coefficients of the analysis filter bank in the decomposition stage of the digital data system; ~~and~~

generating a compressed data signal from the filtered input data signal in ~~the encoding portion~~ a quantization stage of the digital data system;

coding the compressed data signal into a compressed coded signal in a coding stage of the digital data system;

decoding the compressed coded signal and generating a compressed decoded signal in an inverse coding stage of the digital data system;

generating a decompressed data signal from the compressed decoded signal in an inverse quantization stage of the digital data system;

filtering the decompressed data signal using the optimized CSD-coded wavelet coefficients of the synthesis filter bank in an inverse decomposition stage of the digital data system to generate an output signal substantially similar to the input data signal.

7. (original) The method of claim 6, wherein the predetermined threshold is based on a predetermined reconstruction error.

8. (original) The method of claim 6, wherein the predetermined threshold is based on a predetermined test image.

9. (original) The method of claim 6, wherein the step of selecting the value of N further comprises the step of determining whether the same value of N is selected for the analysis filter bank as for the synthesis filter bank.

10. (original) The method of claim 9, wherein the step of selecting the value of N further comprises the step of selecting the value for N according to the significance of the wavelet coefficient.

11. (original) The method of claim 9, wherein the predetermined threshold is based on a predetermined reconstruction error.

12. (original) The method of claim 9, wherein the predetermined threshold is based on a predetermined test image.

13. (currently amended) The method of claim 6, wherein the step of generating the series of wavelet coefficients comprises the step of generating a series of integer wavelet coefficients.

14. (currently amended) The method of claim 6, wherein the step of generating the series of wavelet coefficients comprises the step of generating a series of integer wavelet coefficients.

15. (currently amended) The method of claim 6, wherein the step of generating the series of wavelet coefficients comprises the step of generating a series of truncated wavelet coefficients.

16. (currently amended) The method of claim 6, wherein the step of generating the series of wavelet coefficients comprises the step of generating a series of rounded-off wavelet coefficients.

17. (currently amended) A method of forward and inverse decomposing an input data signal and a compressed data signal in a lossy ~~encoder-decoder subband coding~~ digital data system, comprising the steps of:

receiving an input signal through ~~the encoder portion of the digital data system~~ a decomposition stage of the digital data system;

generating a series of wavelet coefficients for an the analysis filter bank as part of ~~the~~ an encoder stage of the digital data system;

generating a series of wavelet coefficients for a ~~the~~ synthesis filter bank as part of the decoder stage of the digital data system;

representing the wavelet filter coefficients for the analysis filter bank as canonical signal digit (CSD) thereby forming a CSD-coded optimal representation of the analysis filter;

representing the wavelet filter coefficients for the synthesis filter bank as canonical signal digit (CSD) thereby forming a CSD-coded optimal representation of the synthesis filter;

performing a forward signal decomposition for the input data signal using the CSD-coded analysis filter; and

performing an inverse signal transformation on the compressed data signal using the CSD-coded synthesis filter to generate an output signal substantially similar to the input data signal.

18. (original) The method according to claim 17, further comprising the step of :

selecting the value, Ma, to represent the resulting number of CSD-coded coefficients from the optimal representation for the analysis filter,

adaptively adjusting the value of Ma to reduce the number of CSD-coded coefficients from the optimal representation of the analysis filter.

19. (original) The method according to claim 18, whereby the process of adaptively adjusting the value of Ma is based on a measure of accepted recovered image quality.

20. (original) The method according to claim 18, further comprising the step of:

selecting a value, Ms, to represent the resulting number of CSD-coded coefficients from the optimal representation of the synthesis filter;

adaptively adjusting the value of Ms to reduce the number of CSD-coded coefficients from the optimal representation of the synthesis filter;

21. (original) The method according to claim 20, whereby the process of adaptively adjusting the value of Ms is based on a measure of accepted recovered image quality.

22. (original) The method according to claim 18, where the step of selecting the value of Ma further comprises the step of adjusting its value according to the significance of the wavelet coefficient.

23. (original) The method according to claim 18, wherein the step of selecting the value of Ma further comprises the step of adjusting its value according to the significance of the subband.

24. (original) The method according to claim 18, where in the step of selecting the value of Ma, further comprises the step of setting Ma to zero when processing the lowest frequency subband in a subband coding system.

25. (original) The method according to claim 18, further comprising the step of selecting a value, Na, to represent the number of terms for each of the Ma selected number of CSD-coded coefficients of the analysis filter.

26. (original) The method according to claim 20, wherein the step of selecting the value of Ms, further comprises the step of adjusting its value according to the significance of the wavelet coefficients.

27. (original) The method according to claim 20, wherein the step of selecting the value of Ms, further comprises the step of adjusting its value according to the significance of the subband.

28. (original) The method according to claim 27, wherein the step of selecting the value of Ns further comprises the step of selecting its value according to the significance of the subband.

29. (original) The method according to claim 20, wherein the step of adjusting the value of Ms, further comprises the step of setting Ms to zero when processing the lowest frequency subband.

30. (original) The method according to claim 20, further comprising the step of selecting a value, Ns, to represent the number of terms for each of the Ms selected number of CSD-coded coefficients of the synthesis filter.

31. (original) The method according to claim 23, wherein the step of selecting the value of Na, further comprises the step of adjusting its value according to the significance of the subband.